The JOURNAL *of* GEOGRAPHY

Copyright 1939, by the National Council of Geography Teachers

VOLUME XXXVIII JANUARY, 1939 NUMBER 1

THE TEACHING OF HOME GEOGRAPHY

H. H. HAHN
State Teachers College, Wayne, Nebraska

What points should receive major emphasis in the teaching of home geography?

TEACHING TECHNIQUE

Why is a knowledge of home geography necessary? The child finds his geography text a mere outline of information on matters concerning which he has altogether too few first-hand experiences. He is expected to make this outline real to himself by filling in the details with mental images which he does not possess. He is called upon to interpret world geography before he knows home geography. In consequence his textbook to him is too often a mere jumble of words. To remedy this situation he must be led to acquire a goodly store of geographic imagery or geography experiences thru a study of home geography. If the child is to understand the part of the world which he does not see, he must first understand the part he does see. A thoro knowledge of the geographic phenomena of his immediate environment is therefore fundamental in making book geography real to the child. In short, he must experience his home geography.

But it is not enough for the child to know his home geography in terms of popular language. He must know it in terms of the language of the textbook, if it is to make the text meaningful and real. As long as the language of geography is unknown to him he is not prepared to read his text. Learning to speak the geography language is largely a matter of learning the meaning of technical terms and of being able to use them in talking about local geographic facts and conditions. After the meaning of a technical term is developed, the teacher should insist on the child's using it whenever the occasion arises. The final test as to whether or not he knows its meaning is his ability to use it correctly in connection with home

geography. The misleading and inaccurate expressions of "the sun drawing up water" and "clouds bursting," in explaining the cause of rain, are decidedly out of place the moment the child knows the meaning of water evaporating and vapor condensing. In general, he should be required to use scientific terms not only because he can express himself more correctly and accurately but also because it is a specific preparation for the reading of the text. Furthermore, there is danger of developing meanings of technical terms in artificial relations. The most convincing evidence that this has not been done is the ability on the part of the child to use the terms in connection with real activities or situations.

When is the course in home geography to be offered? In many schools the study of home geography precedes the study of the textbook. There is no valid objection to this practice. The study of the concrete should precede the study of the abstract. Long before the child can read a geography text he can study and understand simple geographic phenomena in his immediate environment. During the first few years in school he can acquire information at first hand that will explain much of what he reads later in his text. The practice in question has thus psychological sanction. But in too many schools the course in home geography is not only begun but it is also concluded before the textbook is introduced. It is inferred by too many teachers that home geography is a unit of work which can and should be completed before taking up the study of the textbook. Accordingly the common practice of schools is so to organize the courses in geography that when the book work begins the study of home geography stops. This practice has no justification whatever. The course in home geography cannot be completed in the primary grades. Its subject matter varies as much in difficulty as does that contained in an ordinary textbook. If the local materials are properly graded, there is work for each grade in the elementary school. The course in home geography should therefore run parallel with that of the textbook. Such an organization affords an opportunity of using home geography as a laboratory in which children may work out their problems of world geography. In this way home geography is made to furnish a concrete basis for the study of the text. The study of population, of power for manufacturing, of raw materials, of soils, of occupations, of transportation, of exports and imports, of seasons, of latitude and longitude, of winds and rainfall, of distribution of temperature, the study of these units and many others should begin at home where facts and

conditions are concrete and real to children. When so used, home geography becomes the most effective and fundamental means of making geography real.

THE FIELD EXCURSION

Its difficulties and how to overcome them. Of the various devices suitable for the study of home geography the field excursion, when it is carefully planned and controlled, yields the most bountiful results. But when it is not carefully planned and properly managed, it is a waste of time and a demoralizing and disorganizing factor in school discipline. The most important and undoubtedly the most difficult part of the technique of the field lesson is to develop a favorable attitude on the part of the children toward it. Tradition has decided that the place to study and recite lessons is within the four walls of a building. Children are sent to books for subject matter so regularly that they consider anything outside of books as foreign to school work. To adjourn to a field for study and observation is so out of harmony with the traditional practice of the school that it is looked upon by children more in the light of a picnic than a school enterprise. Accordingly, the picnic attitude dominates the whole excursion and turns it into a mere pleasure party. As such the field excursion accomplishes nothing. The above description, of course, does not apply to schools in which observation lessons are used frequently in the kindergarten and continued in the grades. In such schools children learn to look upon field work as a part of their regular school duties.

How is this type of work to be introduced into schools in which it has never formed a part of the regular program? How may an attitude favorable to observation lessons in a field be developed? In introducing field excursions into schools in which the work is new, the first thing the teacher must do is to get the children to realize that the moment the work begins in the field the school is in session, and that the rules and regulations governing the school during working hours in the building must be observed during the session in the field.

Of course, the work is to be done in a new environment and a new environment always has more distractions for children than a customary one. To protect the children from the novelty of the situation the field work must be strongly motivated. The children must be made to feel a real need for the trip. They must feel the need of information which they can best obtain by going into the

field. This inner readiness will tend to hold them to the line of duty and thus protect them from distractions.

Need of specific and definite assignments. But not only must the field work be made purposeful, but its purpose must be definitely formulated. The assignment for the field lesson must be specific and definite. Its problem should be stated in form of a single question, the same as any assignment. Questions should be used in the assignment because the question develops the most specific and definite purpose, and it is just such a purpose that is needed to hold children to the work in an environment full of distractions. The question assignment develops on the part of the children not only a working attitude but also a cortical readiness for particular activities. The situations and phenomena to be observed, not the distractions, are thus likely to receive the attention of the children. How different would be the whole situation were the assignment: "Now, children, we will take a field trip to see what we can see." With such an indefinite assignment the children's attention would be the sport of the distractions. There would be no inner force to hold the children to a purpose, but the course of their attention would be determined wholly by objective conditions.

Adequate equipment. As a fourth point in the preparation for a field excursion the teacher must not forget to have the children take with them the necessary working materials and instruments such as notebooks and pencils, drawing paper and colored crayons, modeling material, field glasses, knives, vessels, etc., the equipment to be taken along depending, of course, upon the nature of the work to be done. Inadequate equipment in the field is as much a handicap as it is in the regular work in the building.

Location for the lesson. A fifth point to be included in the preparation for a field excursion is its destination. When children are prepared and equipped for field work, the teacher must know where to go. She has in mind the particular situations or activities which she wants the children to observe. She should know the places where children can make such observations to best advantage. Not only should she know what places are to be visited, but she should know how to get to these places without wasting time or encountering obstacles. This means that the teacher should go over the field and locate places to be visited before she takes her class out for a field lesson. When once the trip is started, there should be no time wasted in getting to the places selected for work. There must be no loitering on the way.

Having arrived at their destination, the children should begin work promptly. Not a minute should be wasted in the realization of their purpose. Only prompt and business-like procedure and a maximal rate of work can hold the children to their task until it is completed. The slightest halt in the procedure will give distractions a chance at the children. It is for this reason that the teacher should plan her field lessons carefully, even to the minutest details. When the lesson is finished, the class should return to the school building promptly, put away the materials, and be dismissed without delay.

The best time for the field excursion is the last period of the day. In case there are other classes, as in rural schools, they can be dismissed. The geography lesson can be shifted on this particular day to the last period and thus no part of the daily program need be missed. It is best to advise parents of the excursion and of the time they may expect their children to leave the school for their respective homes. In addition to the above points the teacher and the children should agree upon a signal for assembling the children for conference and further instruction, should the same be deemed necessary by the teacher.

A modified form of the field excursion. The field excursion can be used in modified forms with children who frequently get out into the open country or have access to local industries. In going to and fro children observe many natural and social phenomena and thus gain much first-hand information and sense experiences so essential in the study of home geography. Even before the formal lessons in geography begin they are fairly familiar with the topography of their neighborhood. They know something of the land and water forms represented locally, of the work of streams, of different kinds of soil, of the various changes in the earth's surface caused by erosion, of the occupations represented in their community, of the production of raw materials and their manufacture into useful articles, of goods shipped in and local products sent out, of modes of transportation, of the community's relation to the outside world. These and many other every-day experiences the teacher should utilize in the teaching of home geography. To ask children to observe what is already familiar to them is not only a waste of time, but it also turns an effective device into mere play. The teacher should be able to determine to what extent the children already possess the experiences deemed necessary to the study of local phenomena and then organize excursions to supply deficiencies.

But even when further observations are necessary to supplement the child's past experiences, it does not always follow that the teacher must organize and conduct a class excursion. When the thing to be observed is easily accessible or quite common, the teacher may give the children explicit directions for the observation lesson and then trust them to do the work as individuals. The processes of evaporation and condensation, the conditions affecting plant life, the climatic factors operative in the country, the various changes wrought in the earth's surface by the elements, local occupations, the production of raw materials, the bringing of goods and raw materials into the community and the sending of goods and raw materials out, these and many other natural and social phenomena are so easily accessible or so common that children can make observations concerning them without being under the personal supervision of the teacher. Whenever practical individual observation is preferable to group observation, because it places more responsibility upon the child. It is also more in harmony with the traditional program of the school. Furthermore, when only that observational work which the child cannot do as an individual is left for group work, it makes the problem of motivation comparatively easy. Finally, by reducing the number of field excursions under the personal supervision of the teacher to a minimum, it places the whole matter of field lessons upon a practical basis.

The laboratory experiment as an effective device for the teaching of home geography. The experiment is more easily controlled than the field excursion, because it is more in harmony with the traditional classroom. The former, however, is more limited in its application than the latter. In connection with the study of home geography in the elementary school the experiment may be used for the purpose of testing the truth of statements such as "Good Friday is the best time for planting potatoes"; "The air is full of water in the form of vapor"; "Cooling the air decreases its capacity for holding vapor"; "Heat causes water to evaporate"; "Cold causes vapor to condense"; "Warm air falls"; Cold air is lighter than warm air"; "Dry air is heavier than moist air"; "Heat expands air"; "When air expands it cools"; "Dew falls"; "Winds are the water carriers of the earth"; "Water can be made to turn wheels"; "Water carries soil"; "All plants eat"; and so on.

The experiment may also be used for the purpose of illustrating

geographic processes and truths. Thus the processes of evaporation and condensation, the cause of rain, the location of rain belts, the cause of winds, the location of great wind belts, the capacity of air to hold vapor as affected by temperature, different kinds of soil, favorable conditions for plant life, the cause of day and night, temperature as affected by the angle at which the sun's rays contact the surface of the earth, the causes of our seasons, the heat belts of the earth—these and many others can be made real to children by means of illustrative experiments.

ACCESSORY DEVICES

Many things are included in a course in home geography not because they are worthy of study in themselves but because they help to make real the things out in the world. Thus the study of a neighboring creek and its branches give the children a concrete basis for the study of a river and its tributaries; a near-by hill helps to give reality to a mountain; a local dale assists in the development of an accurate concept of a valley; a pond may be made to contribute to the reality of a lake; a protected arm or bend of a creek may serve as a concrete illustration of a harbor; the local railroad and train service furnish the concrete experiences for the study of large transportation systems; the small town helps children to form an accurate notion of large trade or manufacturing centers. But if local activities and phenomena merely suggest world realities, the teacher must have at her command accessory devices for bringing them to full fruition. For this purpose she may use pictures, stereoscopic or stereopticon views, the sand table, and verbal descriptions with abundance of detail.

HOME-GEOGRAPHY OBJECTIVES

The following objectives are to be realized thru the teaching of home geography, according to the newer courses of study.

To lay the foundation for the study of world geography; to teach correct ideas of direction on the globe and on the earth's surface; to gain a knowledge of local physical features; to acquaint the child with his own neighborhood; to build the geographical vocabulary; to gain an idea of how we live, what we do and how the things we do are related to our surroundings; to teach how people live and work and play; to stimulate curiosity about the earth, air, sky, and the people about us; to help the child to understand what the rural community does for other people; to give the child the

first-hand experiences needed to make textbook geography real; to develop appreciation of service rendered by the workers of the world.

ACTIVITIES

Some of the activities appropriate to the study of home geography are:

1. Making scrap books in which to paste pictures illustrating units of work.
2. Taking excursions to observe industries of near-by localities.
3. Taking field trips to study surface features and land and water forms.
4. Making posters telling the story of wheat or cotton or milk or any other staple product.
5. Making maps of streets in the vicinity of the school.
6. Dramatizing scenes from stories read of children in other lands.
7. Playing games children play in other lands.
8. Dramatizing social and industrial activities.
9. Play direction games.
10. Making map showing highways and railroads near home.
11. Making map of surface features studied, using proper map symbols.
12. Making chart showing pictures of farm implements or any other part of farm life.
13. Keeping a record of weather observations.
14. Representing a miniature farm on the sand table.
15. Collecting pictures showing what people in other lands do.
16. Making booklets using advertising matter to show different ways of traveling.
17. Making posters to illustrate industries or transportation activities.
18. Collecting pictures to show the different kinds of building materials.
19. Making an exhibit of different kinds of clothing materials.
20. Collecting pictures to show the different kinds of foods shipped in.
21. Making a collection of bird pictures.

OYSTERING IN THE CHESAPEAKE

PEARLE BLOOD
State Teachers College, Towson, Maryland

Almost any clear day in fall and winter the oyster fleet is out over the Chesapeake. The sails of the dredging boats show white against the sky as they tack back and forth over the oyster rocks. In the shallows and inlets small motor boats drift at anchor, while tongers pull their harvest from the meadows under the bay.

The oyster industry is the most valuable fishery of the United States, and the Chesapeake Bay is one of the finest oyster grounds in the world. From the Virginia Capes, the Chesapeake extends 195 miles to the mouth of the Susquehanna. It reminds one of a great river with many tributaries, as it once was. The rivers flowing into the bay today were branches of an ancient river which wound across the plain to the ocean. When some geological force caused this plain to sink, the sea waters came in, covering the old river valley, severing its tributaries and drowning their mouths. More than 150 ragged inlets reach into the land, producing some 4,600 miles of shoreline of tidewater Virginia and Maryland with sheltering harbors for thousands of small boats.

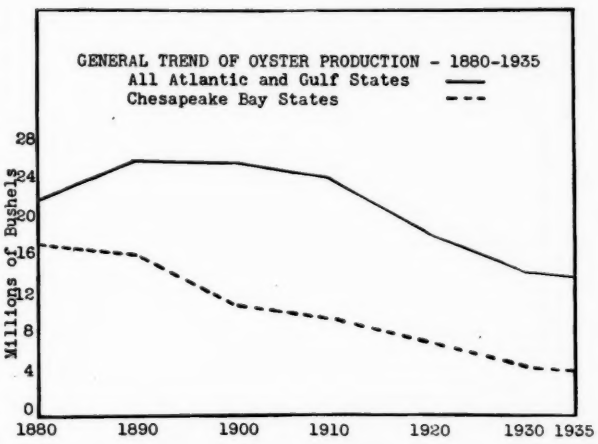


Fig. 1. In 1880 the Chesapeake area supplied 78 per cent of the total production of the Atlantic and Gulf States. In 1935 it supplied about 35 per cent. Over-fishing, the wholesale exportation of seed oysters, and failure to return shells to the oyster beds are primarily responsible for the decrease.

The height of the oyster industry was reached in the decade 1880-1890, when in a single year more than 17,000,000 bushels of market oysters were taken. Since then there has been a gradual decline, until now depletion threatens the continuance of the industry, and has already cost thousands of people their means of livelihood. Tho the Chesapeake has declined in relative importance,

it is still a prime oyster producing area, exceeded as yet by no other single region in the United States.

OYSTER TONGING

Oysters fasten themselves to shells or other hard surfaces on the bottom, and so dredges or tongs are used to pull them free. The typical oyster tonger lives in a small house near salt water. Tho he may own a few acres of land, most of his visible capital

Fig. 2. Oyster Tongers at Work. Hands tongs can be used effectively in water up to ten feet deep. A single tonger working on the public grounds may take seven or eight bushels of oysters in the course of a day. On private beds it is possible to tong ten to fifteen bushels an hour, tho the work is too difficult to keep up for more than four or five hours. Courtesy U. S. Bureau of Fisheries.

is in his small gasoline workboat. In this he starts as early as three or four o'clock to the shallow areas set aside for his use. There he anchors his boat and pays out a short cable. Plunging his tongs straight down into the water, he opens them and feels around until he has a good hold on a bunch of oysters. Then he closes the tongs and brings his catch to the surface, where he dumps it on the culling board. In a favorable location he may bring up a bushel in four or five "licks." By releasing more cable the tonger drifts over new areas and avoids lifting his anchor. The oysters are taken from the bottom in patchwork fashion. This is an advantage, since it does not exhaust the oysters in any one locality, and brood stock is left. When a quantity of oysters has been accumulated on the culling board, the clusters are broken apart with a hammer. The law requires that oysters less than three inches

across be thrown back so they may grow larger and reproduce. From one to three tongers usually work in a boat.

As the morning wears along, "run-boats" and "buy-boats" begin to appear. These are larger boats sent out by the oyster packers or operated independently by middle-men. The oysters are bargained for and sold by the bushel. As they are measured and transferred from the small boat to the larger one, the familiar sing-song scoring rings out. "One is one," calls the oysterman. "One is one," repeats the buyer, as the first bushel swings aboard. "Two is two." "Two is two," comes the echo. "Three is three." "Three is three." "Four is four." "Four is four." "Five is five. Tally." Then the scoring begins all over again. On Saturday the oysterman is usually paid for his week's sales.

Fig. 3. Oyster dredging boats. Courtesy Maryland Conservation Department.

The many small boats, the calls of the men, the chipping of the culler make the scene lively, but the life of a tonger is hard. He must work in the open in the coldest months in all kinds of wind and weather, icy water is splashed up by the tongs, the oysters are cold and wet to handle, hard muscular labor is required. Often ice forming in the shallow water keeps the tonger in port, and then the loss of income causes hardship and suffering in his family.

In the early afternoon the tonger returns home, where he may spend the remainder of the day repairing or cleaning his boat and equipment. In 1936-1937, 3755 tonging licenses were issued in Maryland and 3,262 in Virginia.

Dredging for Oysters

In the deeper parts of the bay and larger tributaries dredging is allowed. The dredge boats operating on the public beds are sail boats, perhaps fifty to sixty feet long. In these, six or eight men may live during the oyster season. Breakfast is over by five-thirty

and the crew is busy preparing for the day's work. By seven o'clock the boat has arrived at the dredging grounds which are strictly delimited by the state. Each boat carries two dredges, one over either side on a wire cable about 100 feet long. As the boat crosses the oyster bed, the captain orders the dredges overboard. When the end of the oyster rock has been reached, he orders the dredges swung aboard, and brings the boat about ready to cross the bed again. There is little conversation. Mud and debris brought up by the dredge must be shoveled overboard, and the oysters must be culled just as they are by the tongers. About eleven-thirty lunch is served. The cook usually helps with the culling also. The dredges are hauled up for the last time about three-thirty, and the boat heads for the packing house. Forty to fifty bushels may have been taken. On the way back there is an early supper with perhaps stewed oysters, hash, vegetables and coffee.

Fig. 4. Hauling in the dredge. Courtesy of U. S. Bureau of Fisheries.

The Maryland law requires that all dredging boats be sail boats. A gasoline engine may be used to operate the winch for hoisting the dredge, but not to propel the boat. This deliberate attempt to make the gathering of oysters inefficient is a conservation measure. A steam or motor-driven boat would be able to go over the bed with such shuttle-like regularity that no oysters would be left. As a sailboat tacks back and forth, some spots are left untouched so that oysters remain for replenishing the supply. It is from the dredging grounds, however, that oysters have disappeared most rapidly. It is said that in the boom days a thousand dredgers operated on the Chesapeake. In 1936-1937 Maryland issued only 125 licenses to dredgers and 80 to scrapers. No public rocks are open to dredgers in Virginia, but about 145 motor boats dredge on the private beds.

PACKING AND SHIPPING THE OYSTERS

The oysters may be taken by the oystermen themselves or the buy-boats to the packing houses, usually one-story buildings located on the water front. Here a state inspector examines the catch to see that the cull law has been observed. After inspection the oysters are placed in bins from which they are taken to the shuckers.

Considerable skill is required to remove the oyster from its shell for the two valves are held tightly together by a strong muscle. By exerting steady pressure a thin-edged knife is inserted between the shells, and the muscle is cut. The meat is removed and thrown into a measuring cup. Less expert shuckers knock off the outer edge of the shell and thus make an opening for the knife. Since the shells are sharp, a glove is often worn on the left hand. A bushel of oysters in good condition will yield about one gallon of oyster meats. Average men or women workers shuck from ten to twelve gallons in a day. The shells which accumulate around the shuckers are taken in wheelbarrows to the shell heaps outside. By the end of the season these assume mountainous proportions.

The shucked oysters are washed in fresh pure water and placed in cans usually of one, three, or five gallon capacity. These are packed in crushed ice in barrels or boxes and shipped to all parts of the United States, and even to Europe. Properly iced, the oysters will keep for weeks. Some of the larger oysters, now chiefly from Virginia, are shipped in the shell packed in burlap-covered barrels. Formerly there were steam houses where the oysters were canned for long keeping, but with the decrease in oyster production, these have been closed, and now all Chesapeake oysters are shipped raw.

THE OYSTER "ROCKS" OF THE CHESAPEAKE

Few regions have more favorable conditions for oyster growth than the Chesapeake. Wide areas of shallow bottom give room for almost unlimited development, while fresh water entering the bay from the rivers lowers the salt content, making the brackish water in which oysters thrive. The many bays and inlets are so sheltered that there are few storms severe enough to tear the oysters loose or smother them with mud. From 135,000 square miles of rich land in New York, Pennsylvania, Delaware, Maryland and Virginia rivers bring down vast quantities of dissolved materials

which make possible the growth of the microscopic plants and animals on which the oyster feeds. As the tidal currents move past the oyster, the food particles are strained from them. When undisturbed the oyster has its shell open almost twenty hours out of twenty-four, and in the course of a day may pump thru its gills eight to ten gallons of water.

In the spring or early summer when the water reaches a temperature of 68° to 70°, spawning begins with the optimum period when the water is around 76°. The female oyster discharges from ten to sixty million eggs. If these come in contact with the sperm cells discharged by the male oyster, fertilization takes place, and the oyster larvae begin to develop. In the larva stage the oyster is soft and free-swimming, propelling itself by means of tiny hair-like projections. Lime is extracted from the water and a shell begins to form. After about two weeks the tiny oyster sinks to the bottom. It is then about one-seventieth of an inch long and is known as spat. If it falls on a hard clean surface, it cements itself securely and there remains until disturbed by some outside force. As the succeeding generations attach themselves to the shells of their predecessors, the oyster "rocks" are built up. About two years is required for Chesapeake oysters to reach marketable size.

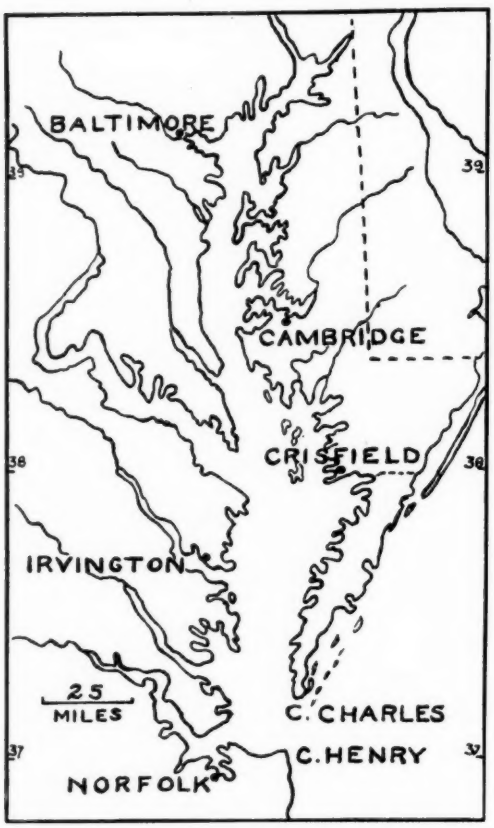


Fig. 5. Chesapeake Bay and the Most Important Oyster Packing Centers

Tho the Indians used the oysters long before the white man came, their needs were limited and their equipment crude, so that little depletion occurred. With the growth of cities in the East, the demand for oysters increased. Improved transportation facilities and the development of

refrigeration permitted shipment to greater distances. Heavy dredges scooped up the wild crop. Millions of bushels of small seed oysters were sold to the North for a few cents a bushel. The removal of great quantities of shells made many places unsuitable for the oyster, for it must be held up in the water where food and oxygen can be obtained. In some places so many oysters were taken that none were left to produce eggs, and so parts of the bay became barren. Both Maryland and Virginia finally began to realize that the supply of oysters was not inexhaustible.

CONSERVATION EFFORTS

The decline in oyster production was giving concern over fifty years ago, and in 1882 the Maryland legislature appointed a commission to investigate the reported depletion. This commission in 1884 warned that the supply must be artificially increased. Their recommendations for conserving and increasing the oysters were substantially the same as those the conservation specialists are making today.

Both Maryland and Virginia have a three-inch cull law. Since oysters have become so scarce, however, this means that on the public beds few ever grow beyond this size. In order to hold the trade built up by the fine quality of the oysters of the past, large oysters are trucked from as far north as Long Island Sound and shipped from Maryland as Chesapeake stock.

In 1927 Maryland passed a law requiring that 10 per cent of the shells from the packing houses be given to the state to be returned to the bay as cultch. In addition the state buys thousands of bushels. Virginia also uses part of the oyster tax money to buy shells for this purpose. At the present rate of shell-planting, it is estimated that two or three hundred years would be needed to replenish the areas which once produced oysters.

In many places seed oysters must be planted, since none remain to produce eggs. In each state certain areas are set aside for the production of seed, that is, small oysters from one-fourth inch to two inches in size. These are redistributed in places where growing conditions are favorable.

Laws restrict the oyster season, and define and limit the type of apparatus used. Oyster bars are temporarily closed when conditions require it. Each state maintains an oyster patrol to see that the regulations are obeyed. At the Chesapeake Biological Laboratory at Solomon's Island, observations and experiments are

carried on designed to increase knowledge of the oyster and other seafood industries.

As a result of these conservation measures, and the leasing of certain areas, depletion seems to have been checked, but the increase in production is not yet enough to give any great encouragement or insure future prosperity.

OYSTER PLANTING AND FARMING

In the New England and Middle Atlantic States practically all oysters come from private beds, but in the Chesapeake Bay States nearly two thirds still come from the public rocks. The dependence upon the natural rocks and the seeming reluctance of these states to promote more private planting is probably due in part to the long period over which oysters were taken freely with no or little regulation. This helped to build up a tradition that property rights ended at the water's edge, and that the harvest from the bay was every man's heritage.

The oyster areas were surveyed in Virginia in 1892-1893, and in Maryland between 1906 and 1912. The areas then producing were considered natural rocks, and were left free to all. Provision was made for leasing barren sections where oyster beds might be developed thru careful planting. In Maryland only about 10,000 acres are so leased, and most of these are not used for production, but for temporary storage to wait better market conditions. At present only thirty acres may be leased in the tributaries, an area too small to be profitable. In the bay 500 acres can be leased theoretically. Many of the places open for leasing are unsuitable, and provision for protection is inadequate. Therefore about 90 per cent of Maryland's oyster production is still from public beds.

Virginia, however, has given more encouragement to private planters. There a single individual may lease up to 2,000 acres of good oyster bottom, or up to 5,000 acres of less desirable space. About 211,000 acres are in public beds with about 60,000 acres under lease. On this limited acreage the oyster planter produces three bushels of oysters to one from the public beds.

More than a thousand years ago seed oysters were raised on a small scale in Italy, but France is usually recognized as the originator of modern oyster farming. The industry, however, grew up independently in the United States about 1855 thru the observations and experiments of oystermen in the East River.

An oyster farmer must prepare the ground and plant and care

for his crop of oysters just as he would care for a land crop. He usually dredges from the bottom the accumulated debris, slimy old shells, star fish and snails which are enemies of the oyster. In the early summer he will plant some adult oysters as brood stock. Just before spawning time, the bottoms adjacent are covered with old shells or other types of cultch. A single shell may collect from 100 to 1,000 spat, but perhaps 98 per cent of these will die from lack of food and oxygen. In many places spat collectors are used, such as cement coated egg-crates. These can be easily broken apart and the small oysters redistributed over the bottom after a few weeks. This helps to prevent crowding and gives them a better chance to develop. In the fall or spring the oysters are transplanted to deeper waters where they are left to grow for about two years. Just before marketing they may be transplanted again to the fattening grounds where there is clean water and abundant food. When they have reached their best condition they are tonged or dredged and sold. Because these oysters are larger and better shaped than the crowded oysters from the public beds, they usually bring higher prices. Some planters do not try to produce oysters from brood stock, but only buy seed oysters and keep them until they are big enough to sell.

The tongers and dredgers who work on the public rocks are often openly hostile to the planters. The tonger fears the increased encroachment of private beds on the public grounds, while the planter is sure that some of his oysters find their way to market via the independent oysterman.

WHAT THE FUTURE HOLDS

The decline of the oyster industry is written in the small production, the closed packing houses, the lessened opportunities for employment, the widespread destitution among oystermen's families, and the decrease of population in the tidewater counties and towns. The hope for its restoration lies in the speedy recognition by those in power of the folly of throwing away future prosperity for a small immediate profit. Positive action is needed in continuing and extending the present conservation efforts on the public beds, and in giving increased opportunity and encouragement for private development. The fertile waters and the oyster beds of the Chesapeake are great natural resources, whose continued productivity depends upon their wise use.

Note: Teachers may secure additional information about oys-

ters from the United States Bureau of Fisheries, Washington, D.C. Recent publications are: Fishery Circular, No 21, *The Story of Oysters,* by R. H. Fiedler; *The Oyster and the Oyster Industry of the United States* (mimeographed).

SUGGESTED QUESTIONS FOR STUDY

1. What evidences of oystering would be visible to a traveler thru the Chesapeake Bay country?
2. How do the natural characteristics of the bay help to make it one of the best oyster producing regions in the world?
3. How do the oystermen adjust their methods to the characteristics of the oysters?
4. Why are conservation measures necessary? Use the column headings suggested to help explain how the oyster industry is regulated and promoted.

Conservation Measures	*Why These Are Effective*

5. In the towns along the bay many of the ways of making a living depend directly or indirectly upon the taking of oysters. The packing houses make several other industries necessary. Make a list of the different types of workers who might be affected by the decline or prosperity of the oyster industry.
6. How does the work of the oyster farmer vary in the different seasons?
7. How do the Chesapeake Bay states compare in oyster production with the Atlantic and Gulf states as a whole? What additional measures might help these states improve their present position?

AN OLD WORLD MUSEUM ACTIVITY UNIT

MRS. ELAINE HARLAN
Washington School, Decatur, Illinois

The desire of the children to show in some visual form the geographic positions, natural regions, and natural resources of the Old World continents led to the making of a museum arranged in a shelved cabinet.

Homes of other lands and ships containing exports were made to show how these people adapted themselves to their environment.

ORIGIN OF THE UNIT

In order to do this the pupils of the sixth grade suggested the Washington Geography Activity Club which met weekly, and the work was directed by its members. Since the work to be done followed the course of study it consumed the entire school year. Following the preliminary work the activity progressed according to the parts of the Old World studied. Officers of the club were elected and committees appointed for special work to be done. The slogan of the club was "*Know Your Geography.*" At roll call each member gave a geographic fact which helped to keep clear the material learned from day to day.

The following committees, each consisting of five members, were appointed for the year's work:

1. Cabinet
2. Maps
3. Modeling of land surfaces
4. Soil
5. Rivers
6. Lakes
7. Oceans
8. Glaciers and icebergs
9. Grasses
10. Grains
11. Fish
12. Minerals
13. Forests
14. Precious stones
15. Lettering
16. Typing

Each child had a "museum box" in which was put a collection of articles found at home, or elsewhere, that could be used in the activity.

PROCEDURE OF THE UNIT

The first work was the building of the cabinet under the supervision of Mr. Waddel, manual training instructor for Johns Hill Junior High School, whose shop was in the basement of Washing-

ton School. It required the time of five of the larger boys an hour each day for one semester. The cabinet was made with semi-circular shelves representing the zones of the earth in their respective positions and size. These shelves drawn to a scale, were fastened to a substantial back as parts of a flat topped cabinet that had two enclosed shelves below. The flat topped surface and shelves were used for exhibits of ships and homes.

While the boys were making the cabinet, various committees were getting ready for the geographic construction work by collecting pictures that showed homes of other lands, reading to find why and how people live as they do, collecting materials to use in their work, cutting letters, and writing to business concerns for materials.

Centers of Construction Work

After the cabinet was finished outline maps of each zone were prepared. Commercial maps were used to secure accuracy and save time. Cutting along the Arctic Circle gave the land surface for the North Frigid Zone. When the map was cut along the coast line it was pasted to the topmost shelf with the Arctic Circle at the edge. The other zones were similarly constructed on their respective shelves. This had to be very carefully done so that a good foundation for future work could be obtained.

Salt and flour were used to model the relief. Two cups of salt and one cup of flour were sifted together to thoroly mix them. Water was added a little at a time to make a stiff dough. Using first paste for a foundation, the dough was spread over the continents, and the physical features molded. Then rivers, which were made of blue construction paper, were pasted in their proper places.

Fine sifted black earth was used to represent the soil, while sand was spread over desert areas.

Mountains on which glaciers are found were shown by making the glaciers of white paint sprinkled with artificial snow. Sawdust dyed green represented the grasslands. Forested areas were shown by using branches of lycopidium (an artificial spray used by florists in making wreaths). These when "planted" along the northern part of the North Temperate Zone gave a miniature replica of the northern forest belt. They were also used to show other forested regions. Forests were made permanent by drilling a hole in the salt and flour foundation for each tree. Glue was dropped into each hole, the tree was "planted" then soil and grass were pressed around it to keep it firm.

The sudan grass was made of straw flowers. Petals from yellow flowers were cut into blades of grass. These were fastened between the deserts and the tropical forests.

Tall forest trees cut from the lycopidium represented the tropical jungle. Among these trees were wound clinging vines made from the grass used in Easter egg nests. Bright tiny artificial flowers of all colors dotted the jungle, and represented the luxuriant vegetation of the tropics.

The minerals of the Old World continents were shown in their proper places. Pieces of iron, coal, gold, silver, platinum, lead, zinc, tin, tungsten, slate, salt, graphite, copper, asbestos, sulphur and mercury showed what countries were actively engaged in mining, and made attractive spots of color on the landscape. The only mineral that was not truly represented was platinum , silver paper being used for that.

The precious stones sparkled when touched by the rays of the sun, and the diamonds of South Africa, the stones of India as well as the pearls of the surrounding waters showed the vast mineral wealth of these countries.

The oceans and seas of the Eastern Hemisphere were painted blue. Fish representative of the different zones were shown in their respective places. Very small representations of fish were cut from magazines, paper wrappers around cans, and from fish games the children collected.

The ice and snow of the Frigid Zones were represented by covering the salt and flour foundation with white paint and artificial snow.

The Equator was a wire fastened halfway between the Tropic of Cancer and the Tropic of Capricorn. This was a semi-circle that bulged forward to show the size and shape. Each shelf edge and the wire were painted white, and black letters, cut from construction paper, were pasted on to show the locations of the zone divisions.

The shelves of the museum now showed all of the zones, their physical features and natural resources.

As the children worked on this unit they showed that the windward sides of the mountains were the most densely forested, and that the deserts of the earth were in the paths of the rainless winds.

Wind, rain, physical, and vegetation maps were constantly used in order to insure accurate results.

Homes of all of the different parts of the Eastern Hemisphere

were made to show how people adapt themselves to climate and natural regions. Among the homes made the igloo of the far north fashioned from half an eggshell painted to represent blocks of snow with a long white paper tunnel seemed quite real on its snowy landscape made of salt and flour. The homes of the hot dry lands were made of clay and had flat roofs. Steep roofed houses showed the adaptation to a rainy climate, while those of the tropical jungles had thatched roofs and were on stilts as a protection from wild beasts. The houses of the Swiss had small stones fastened to their roofs so that they could withstand the strong winds of the Alps. One boy made an old Austrian castle with its courtyard.

The next discussion was about the people of the World and their dependence upon one another. As a result of this study which reviewed the interdependence of people, one of the boys who had a ship mold, made fifty tiny ships.

Each child took a ship and chose a country of the Old World to which his ship should belong. A tiny flag was made and fastened on the ship to show which country owned it. On each ship were the principal natural resources that were exported from the country. A small label on the side told the ships cargo, as well as the name of the exporting country and the place to which it was sent.

The houses and ships were placed below the shelves, and the museum told the story of man's adaptation to his environment.

The typing committee typed explanations of each part of the museum so that it could be easily understood.

The Geography Lemonade, a Culmination of the Activity

At the close of the work on the museum the children decided to have a "Lemonade" for their parents, friends and teachers.

The typing committee made geography booklets which were given as favors. The covers of the books were gray tied with red, white and blue ribbons. On the outside of each was pasted a geography picture while on the inside were the names of the various committee members, the program, and the recipe of the cookies served. The children had found from what parts of the Old World each part of the recipe could be obtained.

For example:

Date Nut Cookies

1 cup brown sugar—(Cane sugar) Dutch East Indies, Philippines, Hawaiian Islands
¾ cup of butter—Sweden, Denmark, New Zealand
2 eggs—Any country, Denmark especially

2 cups of flour—(Wheat) Russia, Algeria, Bulgaria
1 teaspoon soda—(Made from salt) Poland, Germany
½ teaspoon cloves—Zanzibar, Pemba
1 teaspoon cinnamon—Ceylon, Dutch East Indies
½ cup of hot water—Any place
1 cup chopped dates—Iraq, Arabia, Sahara
1 cup of chopped nuts—France, Spain, Italy, Portugal
Mix and bake as drop cookies.

On the day of the Geography Lemonade two little girls poured from copper pitchers the iced lemonade while a third girl served the cookies. The serving table, arranged by the children, was lovely with its lace cloth and cut flowers in a deep bowl.

Led by the ushers the guests looked at the museum which was explained by one of the club members. The entertainment committee played piano and guitar music softly during the time the guests were served and while they looked at the museum.

Our Geography Activity Club thus came to a close for the summer.

CORRELATION WITH OTHER SUBJECTS

We have departmental work in the sixth grade, but the following integrations were evident:

1. History
   a. Children learned that the earliest civilizations started along the Mediterranean Sea.
   b. They understood that China, once the most advanced country, became backward while newer nations progressed.
   c. They learned why European countries can never hope to be a united nation as is our United States.
   d. As the work progressed points of relationship between history and geography became more clear. They could understand how nations respond to their environment.

2. Arithmetic
   a. In the construction of the museum cabinet the boys used a scale so that the location, shape and size of the semi-circular shelves would, in as far as was possible, typify those of the zones of the earth.
   b. When making the houses, dimensions were used that required the use of the ruler.

3. English
   a. The children wrote letters to commercial firms for advertising materials which were used in the construction of the museum.
   b. Reports were written and read to the class telling how and why the people of the Old World live and work.
   c. Invitations were written to special guests inviting them to the Geography Lemonade.
   d. Folders were made in which were listed the club committees, the club slogan,

and purpose. The slogan was "Know Your Geography"; the purpose—The building of an Old World Museum.

4. Reading
   a. The children read stories about the people of the Old World. Some were read aloud during meetings of the Geography Club.
   b. The children read for a definite purpose in order that their understanding of man and his relation to his natural environment be more clear.
   c. Current events pertaining to the unit were brought to school. Some were put on the bulletin board while others were discussed in class.

Art and Manual Skills

1. The children acquired accuracy in following directions.
2. Committee members learned to plan the work.
3. There was a great deal of art work in:
   a. Lettering.
   b. Painting.
   c. Building houses.

Outcomes

A. Appreciations
1. An appreciation of our living conditions as compared with those of many of the peoples of the Old World.
2. An appreciation of the culture, patience, and thoroness of these Old World people.
3. An understanding of why other people live as they do.
4. A feeling of kinship with Old World children.
5. A development of cooperation among the children as a result of having one definite objective to which all committees gave their best.

B. Habits
1. Responsibility in caring for materials.
2. Ability to make decisions.
3. Ability to cooperate to share materials and ideas.
4. Ability to seek information and materials.

C. Skills. Growth in ability to:
1. Follow directions.
2. Make and use plans.
3. Use table of contents, index, pictures and other materials to gain information.
4. Give oral reports in an interesting way.
5. Listen courteously while others are reporting.
6. Attack new problems intelligently.

BIBLIOGRAPHY

Geographies

1. Brigham and McFarland: Our Continental Neighbors
2. Bodley and Thurstan: The Old World Continents
3. Atwood-Thomas: Nations Beyond the Seas (text)
4. Atwood-Thomas: Home Life in Far Away Lands
5. Stull and Hatch: Our World Today
6. Barrows-Parker: Europe and Asia, Southern Lands
7. Huntington, Benson, McMurry: How Countries Differ

8. Huntington, Benson, McMurry: Why Countries Differ
9. Dodge-Lackey: The World and Its People

Travel and Social Customs

1. Moore, Nelle E.: Near the Top of the World
2. Chamberlin, James: Africa
3. Petersham, Maude-Miska:
   a. The Story Book of Iron and Steel
   b. The Story Book of Coal
   c. The Story Book of Oil
4. Harris, Lelia-Kilroy
   a. It Happened in South Africa
   b. It Happened in Australia
5. Whitcomb, Clara-George, Marian
   a. Little Journeys to Italy
   b. Spain and Portugal
6. George, Marian: A Little Journey to England and Wales

Geography Readers and Atlas

1. Huntington, Ellsworth: Asia, A Geography Reader
2. Stamp, L. Dudley: A Regional Geography Asia
3. Rand McNally: A World Atlas

Habits, Outcomes, Skills

Mrs. Lorraine Sherer and Augusta Lindblom: Unit on Mexico, in Childcraft Unit Teaching Materials, Quarrie Publishing Co.

THE ANGLO-EGYPTIAN SUDAN

WARREN STRAIN
State Teachers College, Slippery Rock, Pennsylvania

Extending across Africa in an east-west direction between five and twenty degrees north latitude is a broad transitional belt embracing tropical forests on the south and desert on the north with intermediate zones of park and true steppe areas with their related cultural changes. The transitional character is directly related to the shifting of the vertical ray of the sun and the resultant changes in pressure, winds, and distribution of rainfall. Not only does the total amount of precipitation decrease from south to north but also the length of the wet season becomes shorter and the rainfall less dependable. The rivers in this great belt invariably halt, uncertain of their way, as if repelled by the desert influence and spread out in a network of morasses and marshes. Only the Nile finds its way across the desert, draining a swampy area made by a great number of faltering, entangled, deltaic rivers.

In the eastern part of this transitional belt, occupying an area about one-third that of the United States and lying almost entirely within the drainage basin of the Nile River System is the Anglo-Egyptian Sudan (Fig. 1). Only within the past few years has the Sudan[1] become of international importance. As late as 1884 Great Britain decided to abandon the territory and even General Gordon, then in command there wrote, "The Sudan is a useless possession, ever was so and ever will be so. . . ." This is in striking contrast with the opinion now held by Great Britain and many other nations of the world. Slowly but surely the Sudan is entering the world's cotton market in competition with the United States. But cotton production is dependent upon irrigation and here the Sudan comes in conflict with Egypt over the use of the Nile's water. To Egypt the water means food for the teeming millions while for the Sudan it means a cash crop. The future expansion of irrigation is very definitely related to the policy to be developed at Lake Tana. Recent Italian conquests in Ethiopia have brought the question of the status of this program before the world's view. Hence these three things have been of major importance in making the Sudan enter the world picture.

[1] Hereafter the term "Sudan" will be used in this paper to mean Anglo-Egyptian Sudan.

REGIONAL SUBDIVISIONS

Since the Sudan is a transitional zone it is impossible to describe it accurately as a whole. Therefore four regions will be recognized

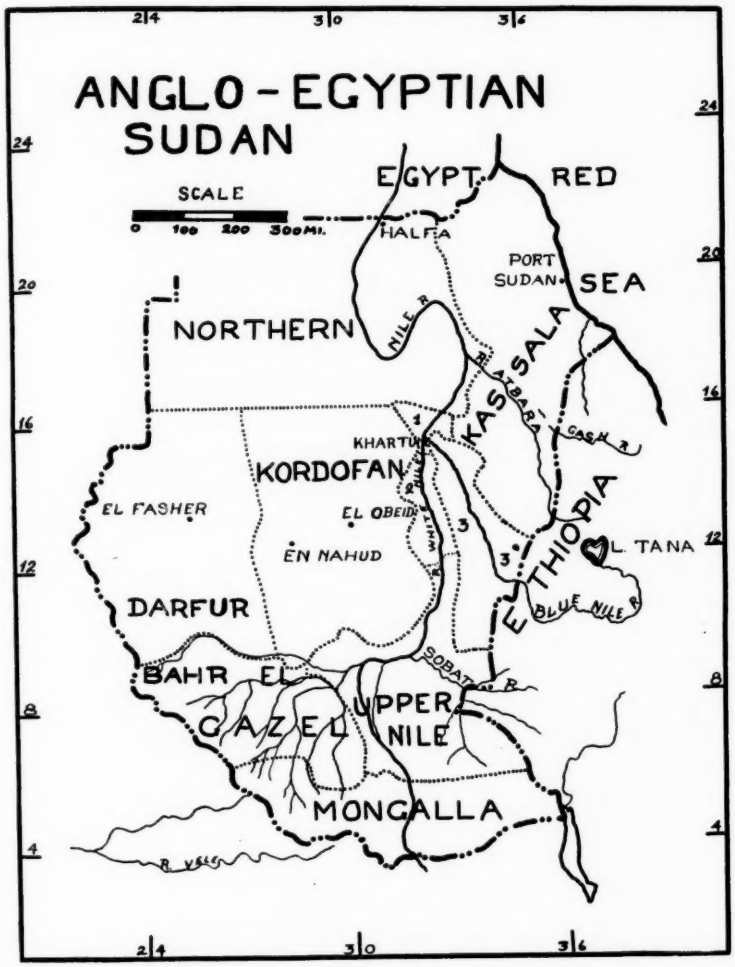


Fig. 1. Boundaries based on map published in the Sudan Almanac, 1936. Official publication of the British War Office. Provinces 1. Khartum. 2. White Nile. 3. Blue Nile.

and discussed. They are: I. The Upper White Nile, II. The Dry West Central Region, III. The Irrigated East Central Region, and IV. The Northern Desert. It must be remembered that the boundaries between these regions are *zones* and not *lines* and that one region merges into the other almost imperceptibly.

THE UPPER WHITE NILE REGION

The outstanding feature of the natural environment in the upper reaches of the White Nile is the extensive area of marsh and swamp. Especially during the season of rain, which lasts from April to October, the swampy characteristic is dominant. The numerous tributaries wander listlessly thru the aquatic waste, their channels frequently being choked by the luxurious growth of papyrus, locally known as sudd, which encroaches upon the rivers and forms floating islands of matted and tangled roots. Unlike the other tributaries, the Sobat is a mountain stream and almost doubles the volume of the White Nile. The rush of water from this mountain stream tends to hold back the waters of Bahr-el-Gazel and further accentuates its swampy character (Fig. 1). Thus the rate of flow in the White Nile is so retarded that probably more than half of its water is lost thru evaporation and absorption.

Occupying sites on the slightly elevated knolls within the swamps or on the higher lands around the edge of the region are the villages of the natives (Fig. 2). There are many tribes and while each has its own distinctive characteristics, the differences are minor. A typical village consists of detached groups of huts clustered about an open space. The houses have a circular wall built of mud about a foot thick and six feet high and thatched with a cone-shaped roof. The finished product resembles a well built haystack. There are no windows since they would only provide another entrance for mosquitoes and the door-way is a small hole about two and one-half feet high and two feet wide. "Each house is a single room, or more properly, each house is a number of detached rooms, for as a rule each family has from two to five of these small cone-shaped, haystack-huts enclosed within a fence of corn stalks."[2] Conspicuous in the village landscape are the stables where the herds of cattle are kept at night.

These Negro people are great herders and tend their cattle with unusual care. Here cattle are never used as beasts of burden and are seldom slain for food. These people do not object to eating flesh but they do not wish to dispose of their cattle. "The chief value seems to be their use as dowry in securing a wife. From three to five head is the price of a wife and the man with a family of daughters is an object of envy to every young man because he possesses what aspiring youth most covets—cattle and wives."[3] Cattle are,

[2] J. Kelly Giffen. The Egyptian Sudan, p. 153.
[3] *Ibid.* pp. 157-158.

however, also used as a medium of exchange in most other business transactions.

Grain provides the chief element in the diet altho considerable quantities of milk are used. Small, irregular-shaped fields of millet

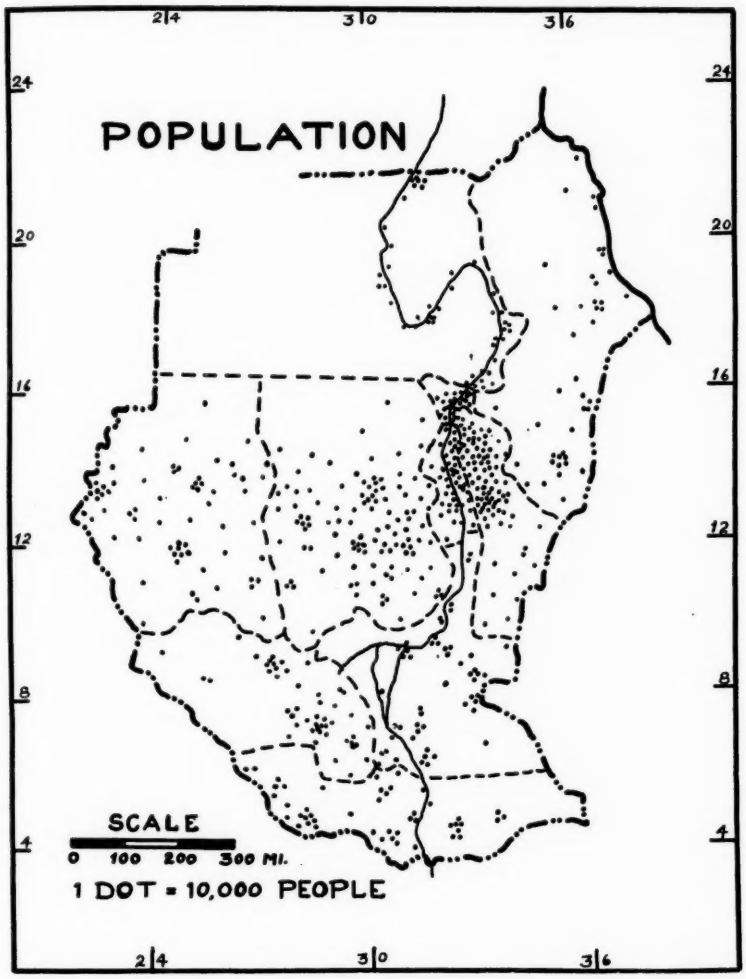


Fig. 2. Population based on data from minor divisions. Data from Sudan Almanac, British War Office, 1936.

are found near each village. Platforms rising above these fields are used as watch towers by the natives to frighten away the great flocks of birds which are so much in evidence. Harvest occurs during the dry season when the tall grass is dry and brown and the earth is parched. Because of the irregularity of the fields and the illiteracy

of the natives, quantitative data are not available. It is a region of subsistence and when locusts destroy the crops, famine results.

White men have left only a meager imprint on the region and the primitive Negroes contribute but little to the commerce of the world. Small quantities of ivory, honey, beeswax, hides, lumber, and cotton are shipped down the Nile but this is definitely a region of subsistence with few needs from the outside world and few contributions.

THE DRY WEST CENTRAL REGION

North of the Upper White Nile Region is a rolling prairie country which is spotted here and there with thickets of acacias and straggling villages with typical cone-shaped straw huts. The seasonal rhythm is more pronounced here than in the region to the south and only during the short wet season which lasts thru July, August, and September do the prairies appear green. With the termination of the rains the landscape undergoes a rapid transformation and assumes a burned, dull, brown aspect. Water and distance are the two great problems here where there are practically no rivers or springs and where there is only torrential rain which dries up as soon as precipitation ceases. A higher premium is placed upon water with every mile traveled north and west. Wells become the congregating points and fix the sites of most villages and roads. One of the most important lines of wells is between El Fasher and El Obeid. These were dug at the order of an old sultan to assist his raiding parties which periodically made raids into Kordofan for cattle.

On the less frequent trails the tebelte or "water tree" is the only source of water for caravans. These trees have soft, spongy wood with naturally hollow hearts. The outside bark is covered with a gum that oozes out of the trunk and makes them excellent reservoirs. The huge trunks are cleaned and scraped out by the natives. During the rains a dike is built around each tree and the water is dipped from these ditches by means of a leather bucket and poured into the open tree. The water is carefully guarded until it is sold. Each tree holds between twenty and thirty barrels.

Watermelons provide another important source of drinking water. The pulp and rinds are crushed and the liquid is drained off and carefully saved. This frequently supplies the only drinking water. "Once when touring to complete my map, I lived for six weeks using these melons for my sole water supply and suffered

little ill-effects, but for sheer nastiness, I commend you to tea made from strained watermelon juice.'"[4] The seeds are extracted from the pulp and provide an important source of food as well as a commercial crop. The residue is used as feed for the donkeys, goats,

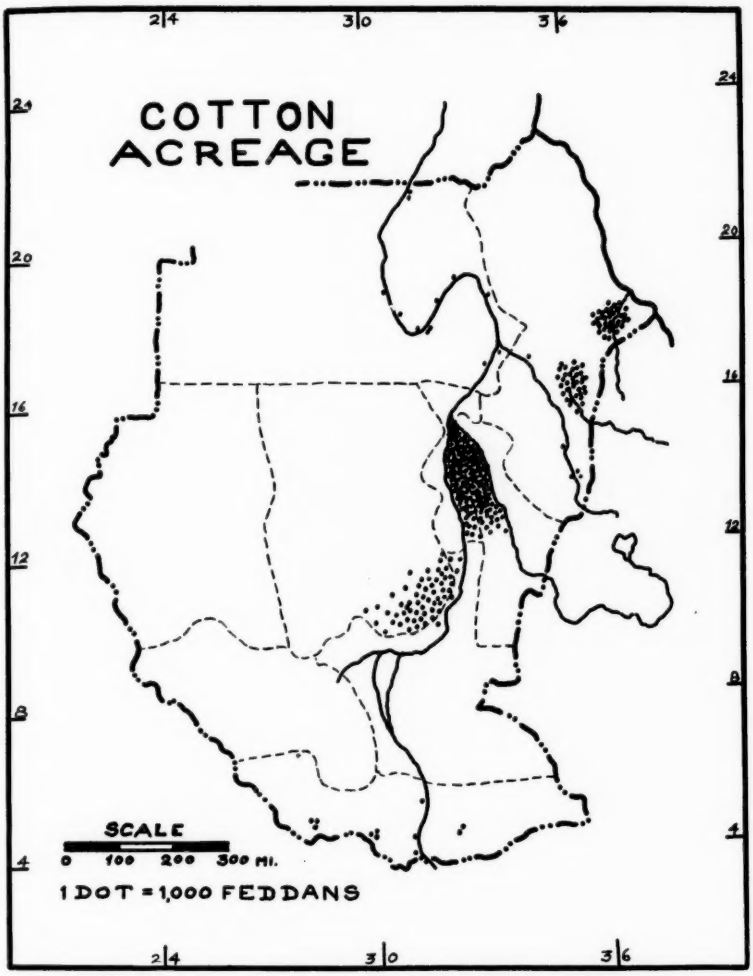


Fig. 3. Average cotton acreage for the years 1933 and 1934. Data from Report on the Administration, Finance, and Condition of the Sudan in 1934. H. M. Stationery Office.

and fowls. The largest area of watermelon production is in Kordofan altho the crop is rapidly spreading westward into Darfur.

Thruout the region extensive areas of millet are sown by crude

[4] Major Edward Keith-Roach. Adventures Among the "Lost Tribes of Islam" in Eastern Darfur, *National Geographic Magazine*, January 1924, pp. 41-66 (p. 66.)

methods during the period of rains. Due to its drought resisting qualities millet is well adapted to this environment and is the chief food crop. The control of the annoying and ubiquitous sand burs and the protection of their crop against the swarms of locusts present two very serious problems to the farmers of this region. In the southeastern part of the region a considerable area is devoted to the production of cotton for local consumption (Fig. 3). This cotton, however, does not enter into the export trade of the country to any great extent.

The most important commercial crop of this region is gum arabic. During the dry season the low acacia trees are tapped and the liquid gum then slowly exudes and hardens in the form of globules from the contact with the air. These globules are collected by the natives at monthly intervals up to June and are taken to the various gum markets where auctions are held. The average annual yield per tree is from one to two pounds. After the gum has been sold to the highest bidder it is taken into a nearby warehouse and turned over to native women and girls for cleaning. Pilgrims on their way to and from Mecca provide an important labor supply for this type of work. After the adhering wood, bark, or straw has been removed, the cleaned gum is carefully sewed in sacks and labeled and it is then ready for shipment. Anglo-Egyptian Sudan accounts for about eighty-five per cent of the world's supply of gum and two thirds of this comes from Kordofan which is supposed to produce the best quality in the Sudan. The three leading markets for this gum are Great Britain, France, and the United States, the latter buying about twenty per cent of the gum exported. Fifty per cent of the gum which is shipped to the United States is used for candy, confectionery, and medicine, while the other half is used for glazing textiles, wall paper, stationery, and printing paper, as well as for mucilage on stamps and envelopes.

El Obeid which is located at the southwestern end of the Sudan Railway System is the most important gum market, altho En Nahud, Rahad, and Um Ruaba hold large auctions. The transportation of products to market provides one of the greatest difficulties. This difficulty is being overcome by the use of light cars with low pressure tires. Kordofan alone has four thousand miles of motor roads while in Darfur motorable tracks connect all important centers. In addition to being a great gum market, El Obeid is important as a cattle, sheep, and camel market.

THE IRRIGATED EAST CENTRAL REGION

East of the White Nile cultivated crops become much more prominent in the landscape since the streams from the adjacent Abyssinian Highlands provide water for irrigation. The four most important of these rivers are the Blue Nile, the Atbara, the Gash, and the Baraka. Two of these, the Gash and the Baraka, lose themselves in the alluvial fans they have formed near the base of the mountains and these two areas of fans become the site of intensive cotton culture (Fig. 3). The acreage varies greatly from year to year dependent upon the supply of water. On the Gash "delta" which centers around Kassala, an average of from 25,000 to 35,000 feddans[5] are planted annually while in the Tokar district, at the "delta" of the Baraka, the acreage is from 30,000 to 40,000 feddans. While these two streams contribute to the commercial welfare of the country, it is the Blue Nile that is of greatest importance.

The Blue Nile, which has its source in Lake Tana in Ethiopia (Fig. 1), provides fully half the volume of the Nile and it is the rush of its water which causes the flooding of the lower valley in Egypt. It has been estimated that two-thirds of the total discharge of the Nile passes the frontier of Egypt in August and September. Of this flood two-thirds comes from the Blue Nile while the remaining third is divided about evenly between the Atbara and the White Nile. But when the great flood has passed, the White Nile supplies about eighty-five per cent of what reaches Egypt.

With the introduction of perennial irrigation in Egypt a serious water problem arose—that of supplying water for the second crop when the White Nile is the chief contributor. The shortage of water in Egypt during the spring is emphasized by the fact that "not one drop of liquid from the Nile reaches the Mediterranean during May, June, and the early part of July. Dams are erected across the mouths of the Nile to prevent the sea from flowing up stream. Every molecule of the precious fluid is used for irrigation purposes. It happens, not infrequently, that the total summer supply does not suffice for the existing needs of the Egyptian, to say nothing of the Sudanese agriculture."[6] Hence the area which may be irrigated in the Sudan is definitely limited until a larger supply of water is made available. By special agreement between Egypt and Great Britain the Sudan was granted the privilege of irrigating 300,000

[5] A feddan is 1.01 acre.

[6] Pierre Crabites. The Sudan Challenges the South. *Atlantic Monthly*, Vol. 143, p. 385-89 (p. 387)

feddans altho 3,000,000 feddans are capable of being irrigated and plowed in the area between the Blue and White Niles—the Gizera District.

In 1925 the great Sennar Dam was constructed across the Blue Nile and water was made available for irrigating these 300,000 feddans. Prior to the completion of the dam the government anticipated the tendency of the farmers to specialize in cash crops at the expense of food crops. Therefore an ordinance was passed compelling all land owners to rent their land to the state, thereby making possible government regulation of all crop land. A policy was established whereby two-thirds of all irrigated land must be devoted to grains for food and fodder while the remaining third could be devoted to cotton production. The Sudan Plantation Syndicate has a franchise to market all cotton. The government receives forty per cent of the proceeds, the tenant also receives forty per cent, and the syndicate gets the remaining twenty per cent. In recent years the cotton area has amounted to over half of the 300,000 feddans which means that either the area under irrigation is more than 300,000 feddans or the two-thirds rule has been waived.

Khartum, the capitol and trade center for the country, is located at the apex of the irrigated triangle. This city with its well planned streets, neat houses, shaded avenues, banks, office buildings, and markets, stands in marked contrast to the native city of Omdurman across the White Nile. Omdurman is a threadless labyrinth of tiny huts too flimsy for the name of sheds. It is probable that never was any other city built for a population of 78,000 where so little wood and iron were used. The houses were made of mud and for each house constructed there was a corresponding hole left in the ground. These holes afterwards became receptacles for filth and refuse of the city.

THE NORTHERN DESERT REGION

Northern Sudan is a true low latitude desert with all that the term implies. A few nomadic Arabs breed camels and sheep in the northwestern part. The greatest centers of cultural activities are in the oases which lie widely separated from each other by vast stretches of sandy waste and parched bunch grass. Date palms and small fields of millet provide the chief sources of food. The Nile Valley is the most important oasis and here is found the most extensive concentration of population (Fig. 2). But the Nile only licks the lip of the desert and hardly anywhere does the area of vegeta-

tion push out more than a mile from the stream. The area devoted to crops varies greatly from year to year depending upon the area flooded. High water of the Nile in 1934 made it possible to cultivate 55,346 feddans that year as compared with 32,289 the year before. Both agricultural and pastoral population prosper or suffer according to the amount and distribution of the rains.

Considerable quantities of American long staple cotton are produced on the irrigated lands along the Nile. To facilitate the irrigation of these lands the government maintains eight pumping stations at various intervals along the stream. A railroad which terminates at Halfa, a native town of less than three thousand on the boundary between the Sudan and Egypt, serves this region.

In the Red Sea Hills north of Port Sudan are three camel raising tribes who are desperate fighters and who have been immortalized by Kipling as "Fuzzy-Wuzzies" because of their enormous heads of hair.

PORTS

The Sudan faces the Red Sea and it is Port Sudan, not Alexandria, which is the chief port for the country. That ninety per cent of the export trade and eighty-three per cent of the import trade of the Sudan for a recent year, was handled thru Port Sudan gives an idea of the increasing importance of this port and the shifting of the bulk of trade which was formerly shipped in transit thru Egypt. Port Sudan is the eastern terminus of all the railroads of the country and trains with dining and sleeping cars operate bi-weekly between the port and Khartum. The clear, deep entrance to the harbor, and the ample space for anchorage in addition to the modern equipment of the harbor have also been important factors in making this the leading port of the Sudan. The harbor is protected from the north and east winds by a strip of land known as East Town where are found the industrial establishments and port equipment. Cotton gins, warehouses, oil tanks, railroad tracks, the custom house, etc., constitute important features in the landscape. Five large new warehouses have been constructed recently. The Sudan Railroad likewise built a sailors' barracks which replaced many unsightly wooden sheds which formerly occupied sites along the water front. West Town is the European quarter of the city with broad, clean streets and office buildings.

The chief products shipped out thru Port Sudan are cotton and gum arabic which together account for seventy-five per cent of the value of the total exports of the country. Thus it will be observed

that the Dry West Central and the Irrigated East Central regions contribute most to the commercial importance of the country. Great Britain is the largest consumer of Sudan products, taking about sixty per cent of the total value of the exports, chiefly cotton.

Thirty miles south is the old port of Suakin which presents as striking a contrast to Port Sudan as Omdurman does to Khartum. Suakin is an old, picturesque port resembling a feudal town. The entrance is narrow, winding, and dangerous due to the growth of coral reefs. Consequently vessels over three hundred thirty feet in length and twenty feet draught cannot safely use the harbor. It does, however, continue active as the port for Mecca pilgrims and the small local coast trade.

REFERENCES

Pierre Crabites. The Sudan Challenges the South. *Atlantic Monthly,* Vol. 143
E. Gautier. Sahara, The Great Desert
J. Kelly Giffen. The Egyptian Sudan
Edward Keith-Roach. Adventures Among the "Lost Tribes of Islam" in Eastern Darfur. *National Geographic Magazine,* January, 1924
Report on the Administration, Finances, and Conditions of the Sudan in 1934
William Langer. The Struggle for the Nile. *Foreign Affairs,* January, 1936
North Winship. The Anglo-Egyptian Sudan, A Commercial Handbook

THE NEW YORK MEETING

of the National Council of Geography Teachers in Connection with the National Education Association, June 27-30, 1938

ETHEL G. CULLEN, Secretary
Haaren High School
New York City

The geographic exhibits arranged by Erna Grassmuck Gilland outside our conference room at the American Museum of Natural History proved so interesting that teachers were drawn away only because they were reluctant to miss any part of the program of the first session. This session was held Monday afternoon, June 27, as a joint meeting with the Department of Secondary Education and the High School Teachers Association of the City of New York. Dr. David J. Swartz of the Haaren High School, New York City, presided.

"Functional Geographic Education in High Schools," contributed by Clara M. Shryock, Assistant Superintendent, Cambria County Schools, Ebensburg, Pa. opened this session. Pointing out that geography in the high schools is not a repetition of elementary and junior high school geography, but is a unique unit culminating a well integrated plan of development, and that its intrinsic values merit it a place of importance in every curriculum, Miss Shryock deplored the state of desiccation to which the subject has come in many places. This condition she attributed to a general lack of understanding of the true nature and value of geography, to ineptitude on the part of many who are assigned to the teaching of the subject, and to a failure to utilize the widely varied and innumerable teaching aids which are now available. Miss Shryock recommended that two courses in geography be offered in every high school: economic geography, which would be included in every curriculum, and a more advanced course in political geography which would be offered as an elective. She also stated that another course called general geography and organized on the basis of natural environmental patterns is offered as an elective in many high schools.

Following this talk, James D. Logsdon, Principal of the Wydown School, Clayton, Mo., led the Panel Discussion, the subject of which was "Geographic Education Adjusted to Pupils' Varying Interests and Abilities." The first speaker, Lenox E. Chase, of the A. B. Davis High School, Mount Vernon, N.Y., emphasized the

need for two types of geography courses in the high school: vocational or economic geography, and avocational or physical geography. This latter course, Miss Chase suggested, might be called "Earth Science," to give it a more alluring name, and should develop an appreciation of the local environment, including the "weather environment," and appreciation of scenery, and, indirectly, an appreciation of the problems of other countries. To be truly cultural, this course should be correlated constantly with literature, art, mathematics, and other related school subjects.

Helen V. DeLaplane, of the Hannah Penn Junior High School at York, Pa., included every conceivable type of visual aid in her talk: "How to Vitalize Geographic Education Thru the Use of Visual Materials," and interspersed many valuable comments about specific applications of each type. A unique project, centering about the problem of mapping the environs of the school, was described by Pauline Hildebrand, Head of the Geography Department of the High School and Geography Consultant in Elementary and Junior High Schools, Aliquippa, Pa. Miss Hildebrand presented this as a demonstration of a way in which high school geography can be made suitable to all types of pupils. The project was planned to interest boys in a steel mill town who were restless during the period of waiting for employment, and involved the making of tools and instruments, as well as land use and contour maps, the organization of field trips, and research into forestry and soil problems.

In discussing the problem: "The Enrichment of the Curriculum for Bright Students," Merle Smuck, Secondary School Supervisor of Geography, Baltimore, Md., suggested methods ranging from field trips to dramatizations. Claire Symonds of the Senior High School at Quincy, Ill., cited many original devices used in her school to stimulate interest in geography, such as, international festivals or pageants, and the organization of singing groups. The last speaker in the Panel, Wilma Mintier, of the High School at Cuyahoga Falls, Ohio, approached the problem of what should be done with students of various levels by analyzing the gaps in the training of retarded children, and then recommended for the high school a type of geography which would incorporate the experiences of the grade school with such added features as are necessary to create a world concept.

In the open discussion which followed, the statement made by one or two of the speakers to the effect that geography was "losing face" was challenged, illustrations being cited of an increasing rather than a waning interest in the subject. Mr. Logsdon suggested

that a live "public relations" program was needed to foster geography study in the schools, and the meeting ended in an atmosphere of general optimism.

The theme of the second session, presided over by Harriet A. Elliott, President of the Pennsylvania Council of Geography Teachers, was "Sequential Geographic Education." The first speaker, Dr. J. Russell Smith of Columbia University, spoke on Geographic Education's Contributions to World Citizenship." To begin with, he differentiated between geography and other subjects, such as physiography, meteorology, etc., explaining that geography utilizes this material and shows how it affects life. He also emphasized that geography is a vast study, like medicine or chemistry.

Citizenship, Dr. Smith defined as the social relationship that men bear to each other, and he recognizes tendencies toward three types of such citizenship: (1) the ancient small community type, (2) world economic citizenship which came into existence with the development of world trade and world wide communication, and (3) the present system of barrier surrounded units struggling for national self-sufficiency. Altho the second system of world economic citizenship has led to an easier life and to a higher standard of living than has ever before been experienced, it is rapidly being supplanted by the third system, with its quotas, tariffs, and imperialistic wars. This striving for self-sufficiency is leading to a lower rather than a higher standard of living, and the only effort being made at present to remedy this condition is the drawing up of reciprocal trade agreements. Dr. Smith is confident, however, that a new world trade and world citizenship are bound to develop once again, and it is the function of geographic education to make possible an understanding of the world resources on which such inter-relationships are based.

In securing Eloise Daubenspeck, Broadcasting Director of the American School of the Air, Columbia Broadcasting Co., to speak on the work of her organization, the National Council emphasized the new relationships and opportunities existing in the field of geography today. After having outlined the difficulties encountered in planning and executing nation wide programs to supply the room teacher with supplementary material, Miss Daubenspeck described the policy of the Broadcasting Company toward program planning and the procedure followed by it. This work is continually handicapped by lack of unanimity of opinion on the function of the educational broadcast. "Our America" was announced as the theme of the program for 1938-39, with present day life in our country serv-

ing as the basis for the development of problems of business, agriculture, science, etc.

In the symposium which followed, Erna Grassmuck Gilland, Consultant in Geographic Education, California, Pa., was assisted by the following participants: Lena M. Beyer, State Teachers College, Jersey City, N.J.; Harriet Elliott, State Teachers College, West Chester, Pa.; George F. Howe, Teachers College of Connecticut, New Britain, Conn.; and Vivienne S. Worley, Bryant School, Denver, Colo.

In developing the topic: "Building A Program In Geographic Education," a number of questions of vital interest to geography teachers were discussed, such as: "What are the Purposes of Geographic Education?" "What Do We Mean By Education Levels?" "What Are the Gradations In Learning Difficulties?" "How Can the Program In Geographic Education Be Adjusted to Pupils of Varying Abilities?" "How Shall We Evaluate Results In Geography?" "What Considerations Must Be Kept In Mind In Preparing Our Future Teachers?" "What Are The Crying Needs In Geographic Education?" Four "crying needs" were stressed: (1) that teachers, parents, and other members of our society be made aware of the nature and content of modern geography; (2) that teaching material suited to the various levels of ability be made available; (3) that the principle of varying learning levels in geography be recognized; and (4) that a more complete record of each pupil's growth in geographic education be kept. To satisfy these needs, teachers prepared extensively and intensively in geographic education are essential.

"Sequential Geographic Education," was again the theme of the third session, presided over by DeForest Stull, Associate in Geography, Teachers College, Columbia University. In his "chalk talk": "Some Physiographic Concepts Essential in Geography," Dr. A. K. Lobeck of Columbia University showed the relationships of land forms and human life. Dr. Lobeck's method was to state a geographic fact and then, with a deftness usually found only in artists on a stage, execute clear-cut, striking diagrams in color which would convey at a glance the significance of the concept he was desirous of making clear. Without doubt, many such concepts could not otherwise be readily grasped by an audience.

Dr. William Jansen, Assistant Superintendent of Public Schools in the City of New York, then spoke on: "The Gradation of Map Learnings." After giving illustrations of such gradations, and analyzing the factors which make the teaching of map reading difficult, Dr. Jansen proceeded to offer a number of suggestions for the

better teaching of map learning. Some are as follows: (1) Care should be taken to give pupils a conceptual background for each symbol; (2) There is need of more research in the analysis of map skills; (3) There should be much meaningful activity in the use of maps (frequent reference to scale, key, etc.); (4) There should be individual testing and guidance of pupils in the ability to interpret maps; (5) Care should be taken not to confuse children by simultaneous learning of conflicting symbols; (6) In testing, hypothetical maps may be used with advantage in order to distinguish between memory and power.

Presenting a profusion of illustrative material not only in the form of wall maps, magazines, and bulletins, but also of slides which were projected, McFall Kerbey, Chief of the School Service of the National Geographic Society, described the four types of supplementary material offered by his organization: pictures, maps, reference material, and brief special purpose textual material.

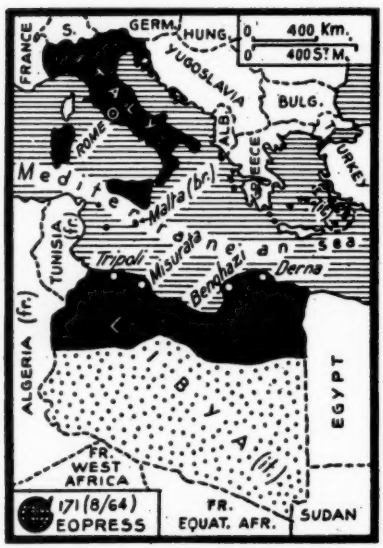
The meeting closed with an extremely practical illustrated lecture entitled: "It Is Worth Ten Thousand Words," by Thelma Waddle, of the H. C. Frick Elementary School, Pittsburgh, Pa. Giving point to her remarks with suitable illustrations, Miss Waddel stated that pictures which show some relationships between cultural items, or between natural items, are of only medium value in geographic education. Those pictures which show cultural features or natural features alone, without any relationships, are of low educational value. It is those pictures which show relationships between cultural items and natural items that are of greatest value.

Miss Waddle then explained how pictures can be used as motivating material, for review, and for testing. Very often, those which are suited to one purpose are unsuited to the others. To be really worthwhile, picture study should proceed thru three steps: (1) the perusal of the picture, (2) interpretation of its significance, and (3) thoughtful consideration of questions involving contrasts suggested by the picture.

Having developed a receptive mood in hearing all the practical teaching suggestions that had been put forth during the three days of lectures and discussions, the teachers were extremely well-pleased to find more helpful material awaiting them on their way out of the conference. This time it was in material form: study sheets from the Geographic Press, literature from various government bureaus, and especially prepared portfolios from the National Geographic Society. With these tucked under their arms, all left with a feeling of intense satisfaction.

EDITORIAL NOTES AND NEWS

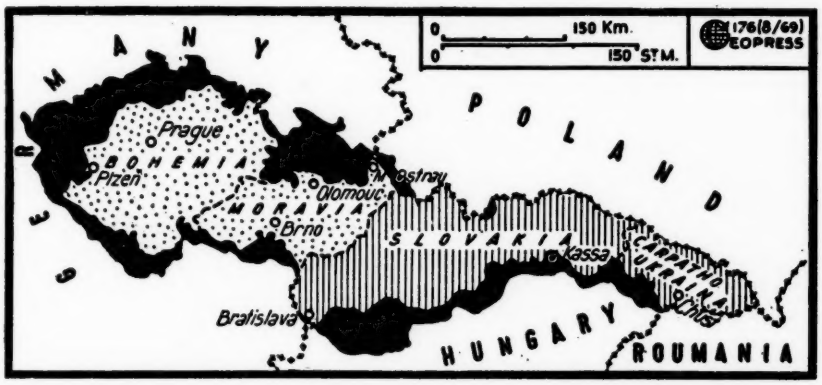
The boundary between Bolivia and Paraguay which was arbitrated in the names of the Presidents of Argentina, Brazil, Chile, Peru, the United States, and Uraguay, in compliance with the peace treaty signed on July 21, 1938, by Bolivia and Paraguay, doubles the area of Paraguay, rounding out more than 150,000 square miles. Bolivia retains possession of the oil lands around Capirenda and gets free port rights at Puerto Casado on the Paraguay River. Paraguay's share is potential cotton and sugar-producing lands with native pasturage for cattle and sheep, and timber areas carrying the quebracho tree valued either for its wood or for the tanning extract secured therefrom. The boundary is difficult to define as most geography texts and atlases lack the details necessary for a clear demarcation. In general, its most northern boundary on the east is at 19° 49′ 40″ S, and 58° 10′ 12.9″ S. near the junction of the Rio Negro and the Rio Paraguay. From there it extends somewhat irregularly west nearly to the sixty-second meridian and thence southwest to the Pilcomayo River at 67° 37′ 19″ W.



It seems that there are various ways of increasing the size of a country's homeland. The Fascist Grand Council of Italy decided, October 25, 1938, to incorporate the northern provinces of Libya (Tripoli, Misurata (Mesurata), Benghazi and Derna) in what is called "national territory." That is another way of saying "Italy proper." In this manner Italy proper is given an area of approximately 216,000 square miles and an increased population of 840,000, or a total population of about 43,850,000. The remaining portion of Libya (see map) continues under colonial administration. It is worthy of note that the area now included as a part of "Italy proper," adjoins Tunisia where there are many Italians. This is where pressure is brought on France.

The new Mittelland-Kanal (Midland Canal) in Germany was opened for traffic, October 30, 1938 (see map). This canal is 294 miles long and connects the Dortmund-Ems Canal with the Elbe, and gives canal connection with Hanover, Hildesheim, and other city centers along the route, as well as making a connecting link with the other river and canal systems of North Germany. It also connects with the Rhine by way of the Dortmund-Ems Canal. It has been under construction since 1906. This means that the north-south flowing rivers of Germany such as the Rhine, Ems, Weser, Elbe and Oder will be now interconnected from east to west. This makes direct water transportation possible between the industrial regions of the Rhine and Berlin, thus eliminating the North Sea route formerly used.

The dismemberment of Czechoslovakia is supposed to be completed at this date. Its present shrunken form is shown in the accompanying maps (See also the JOURNAL for September, October and November). The detailed map of the area taken by Hungary will enable you to revise the maps in your textbooks. In accord with the Munich (Sep-



tember 30) and Vienna (November 2) agreements, and the occupation by Hungary, on November 10, of the areas ceded to it, the rearrangement of areas and population is about as follows. The figures, of course, can be only approximate.

	Before September 30, 1938		*After November 10, 1938*	
	Area Sq. Mi.	*Population*	*Area Sq. Mi.*	*Population*
Czechoslovakia	54,243	14,729,000	38,300	9,800,000
Germany	213,380	74,347,000	224,310	78,003,000
Hungary	35,935	8,943,000	40,570	9,985,000
Poland	149,052	32,107,000	149,427	32,342,000

These figures reveal that Czechoslovakia lost 15,940 square miles, and 4,929,000 inhabitants. Many of these people were not members of the racial stock of the country that acquired them. Germany gained 10,930 square miles and 3,652,000 people; Hungary gained 4,635 square miles and 1,041,000 people; and Poland secured 375 square miles and 235,400 people. In the area acquired by Germany are many valuable natural resources such as minerals and agricultural land, as well as extensive manufacturing industries.

Germany has secured the right to construct and control a highway and a canal in the area left to Czechoslovakia. The latter country is now essentially a vassal state, its continued existence subject to Germany.

By decision of the Parliament of Praha (Prague), on December 23, 1938, Czechoslovakia was organized as a federation of states. The name of the new nation is now divided by a hyphen between Czecho and Slovakia, so as to indicate the federated character of the new nation. The new boundaries were to be located definitely by December 1, 1938. The new federal state now consists of three members (See map) having the following approximate area and population.

	Sq. Mi.	*Population*
1. Bohemia and Moravia—under the government of Praha	19,200	6,727,000
2. Slovakia—government is at Pressburg	14,830	2,462,000
3. Carpathian Ukraina (called Carpathian Russia until November 2)—the seat of government is at Chust	4,260	544,000
CZECHO-SLOVAKIA	38,290	9,733,000

GEOGRAPHICAL PUBLICATIONS

A. E. Parkins. **The South.** 505 pages, 154 illustrations and maps, bibliography, and an index. John Wiley and Sons, New York, 1938. $4.00.

This is a timely book from the pen of Dr. A. E. Parkins, who has long been Professor of Geography at George Peabody College for Teachers. The book "is an attempt to describe the civilization of the South mainly in its economic-geographic aspects and to interpret this civilization in terms of its regional setting and its historical antecedents. In brief, it is a study of the evolution of southern civilzation."

Chapter one, the introduction, is entitled The Advancing South. In this chapter the author briefly surveys the advances that have been made in the South in the past few years. The remainder of the book is divided into six parts. Part one includes two chapters, entitled Nature's Legacy and Man's Modification of the Natural Environment. Part two, The People of the South, consists of one chapter, The White Man Takes Possession. Part three, Providing Transportation Facilities, analyzes in three chapters all the geographic conditions which help to explain the patterns of the highways, waterways, and railways of the South. Part four, Agriculture in the South, is broken up into two chapters. The first, The Development of Agriculture in the South, deals with the problem of agriculture in a historio-geographic way. The second chapter deals with The Agricultural South Today—The Agricultural Regions. Part five, Manufacturing in the South, is probably the most complete treatise ever written on manufacturing in the South. Seven chapters, respectively, The Development of Manufacturing in the South, The Power Resources, The Exploitation of Mineral Resources, The Iron and Steel Industry, Forest Resources and Forest Industries, Textile Industries of the South, Chemical Industries of the South, give a rather complete picture of the manufactural patterns that are found in the South today. Part six, The Urbanization of the South, discusses The Rise of Southern Cities and The Southern Prospect. A very extensive bibliography follows the textural material.

The book is of interest not only to geographers but to every one who is interested in the problems of the South. The book is timely in view of the fact that there is a question as to whether the South presents the Nation's number one economic problem or the Nation's number one economic opportunity.

State Teachers College, Florence, Alabama FLOYD F. CUNNINGHAM